Depot Manufacturing Practices

Remaining Competitive with Private Industry

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As depots attempt to become competitive in expanding their customer base and reducing their repair costs, they need to study their maintenance practices to determine which ones might better be outsourced and which ones they might want to expand. To that end, Activity Based Costing (ABC) may provide those insights. Over the past several years, it has become one of the chief tools for private industry in determining their "true" manufacturing costs. This has aided these companies in determining which product lines to either eliminate or expand. Our depots could likewise use this tool to evaluate their business decisions, and become more competitive and cost efficient.

All Things are in Flux

Where are we and where do we need to be in terms of our depot manufacturing philosophy? It seems to be the same question that faces all modern manufacturing businesses. The Greek philosopher Heraclitus, in 500 B.C., commented that "all things are in flux" and, with time, conditions change. This parable is once again being recognized by major American companies such as AT&T, GM, and IBM as they recognize the need to adapt their businesses and manufacturing strategies to new paradigms resulting from changes in development of technology and customer satisfaction. Like those major industries, we in the military need to continue to rethink our depot business practices in light of the changes that have occurred over the last several years, and the current problems with excess capacity that are more than likely to increase in the coming years.

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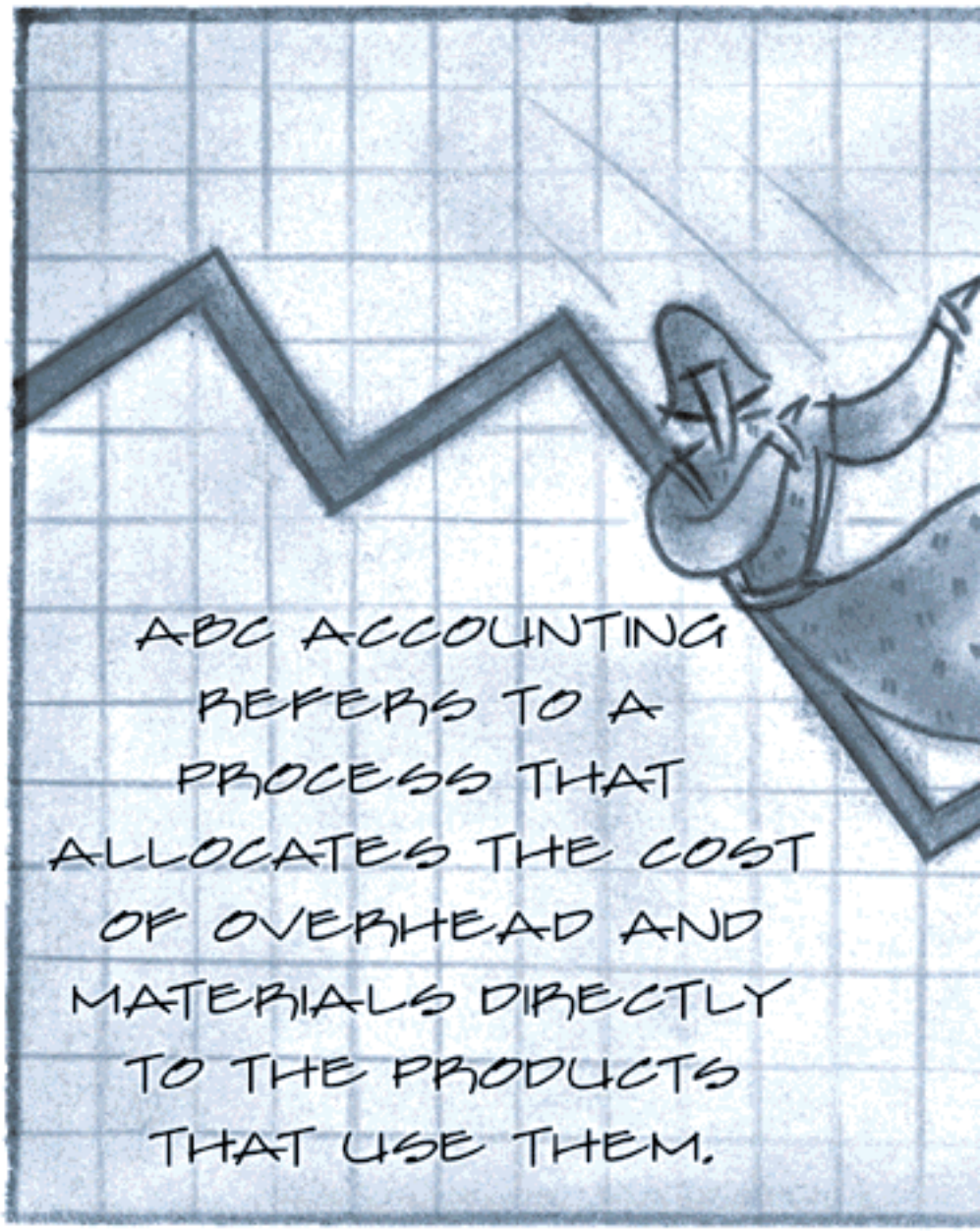


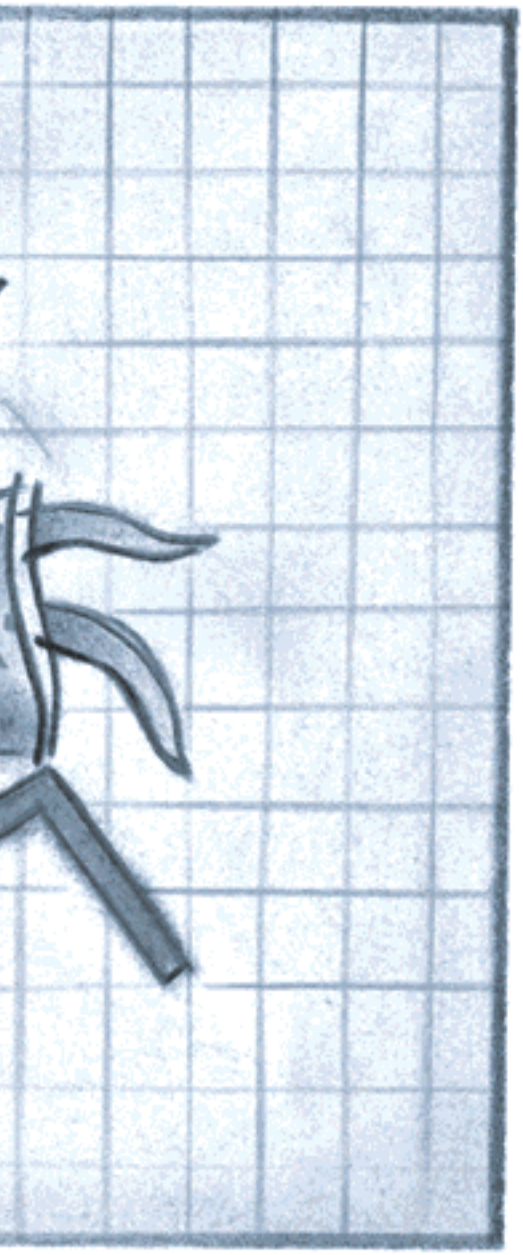
Abandonment

Peter Drucker, the long time guru of innovation in business management, suggests using two procedures to test whether current business practices still serve us, or whether we need to change them. The first he terms "abandonment," where an organization should challenge every product, service, policy, and distribution channel with the question, "If we were not performing it now, would we be following that practice?" As Drucker points out, without purposeful abandonment, an organization will be

overtaken by events. It will squander its best resources on things it should never have been doing, or should no longer do.

Study Non-customers

The second procedure that Drucker suggests is to study one's non-customers and their needs and requirements, for



they normally constitute a larger population than one's customers. This could take the form of two avenues: looking at how one could expand one's business by satisfying an expanded customer base (e.g., non-governmental customers), or studying how one's competitors are meeting customer needs (e.g., other Service depots, or civilian repair/manufacturing facilities). These two avenues will more than likely drive costs and provide insight as to how the repair/manufacturing processes are changing to adapt to technology and customer requirements.

Recognizing Paradigm Shifts, Restructuring

Essentially what Drucker is talking about is recognizing when a paradigm shift has occurred in the way one's business is conducted, and then restructuring one's practices to fit the new situation. On a related theme, an article on Booz-Allen & Hamilton's experiences with restructuring business practices found that a 10 to 25 percent savings could be achieved in private industry for activities that dealt with maintenance repair and overhaul (activities similar to depots), when the suppliers for those activities were consolidated and their business contracts renegotiated.

Cutting business functions is not the easiest thing to do, however, for there are logical arguments that can be made that those marginal activities, even ones that are losing money, are helping to reduce overhead expenses, or that there would be exit costs associated with not performing those functions any longer. While some validity to those arguments exists, it is only temporary, for the increased business in the profitable areas should more than make up for the ones that have been dropped. This counter argument is also suggested by Koch (1998)[1] who feels that the more successful areas can be grown at perhaps as much as 20 percent per year. Thus, after a year or two the organization would be working on a more profitable footing by dropping unprofitable areas.

However, in order to evaluate the above questions about whether a product line is profitable or not, one has to know what it is really costing to perform those missions. The same issue was addressed again by the General Accounting Office (GAO) report, which stated that accurate cost information is critical to making informed decisions regarding DoD programs.[2] GAO went on to state "that DoD needs to develop overhead rates that better reflect actual overhead costs... Specifically, billions of dollars of existing DoD plant, property, and equipment assets have been expensed and, as a result, the cost associated with their acquisition and use may not be adequately considered."

GAO, in another recent report,[3] has pointed out that the depots continue to have a poor handle on their inventories (quantities and where supplies are stored). I believe the best solution to these concerns over depots would be to use something like an Activity Based Costing (ABC) system to determine product costs and track materials within the depot system. This view is further supported by a recent directive by Dr. Jacques S. Gansler, Under Secretary of Defense (Acquisition, Technology and Logistics), who directed the Secretaries of the Military Departments and Directors of the Defense Agencies "to pursue aggressively ABC/M implementation in maintenance depots and everywhere else it could be expected to provide improved cost management."[4]

ABC Costing

ABC accounting refers to a process that allocates the cost of overhead and materials directly to the products that use them, rather than the traditional approach of allocating overhead as a rough percentage measure of some proportion such as volume or time. Thus, costs are traced for resources (people, machines, and facilities) to activities and processes, and then to specific products, services, and customers.

A simple example of this might be where one manufactures two different radios in the same quantity, but one of them requires much more engineering support to meet customers' requirements. For this reason, under the old standard cost accounting system, the indirect costs would be allocated equally between the two radios, and would understate the cost of the customized radio while overstating the cost of the other. These inaccuracies in cost allocation could be quite extreme, overstating product costs

by as much as 200 percent, or understating costs by as much as 1,000 percent, depending on the characteristics of the products and the nature of the production process.

As a consequence, according to a survey of the Cost Management Group of the Institute of Management Accountants, ABC accounting systems are increasingly being used (especially in manufacturing companies where there is a higher potential for cost distortions) as a decision-making tool. This survey found that in 1996, 49 percent of the firms used ABC accounting, with the other 51 percent responding that they were considering its use. In a survey taken the following year of 600 U.S. manufacturers, 65 percent of the respondents reported having already implemented ABC, or at least having specific plans for doing so.

Likewise, once an ABC system is implemented to determine the cost and profitability of the different products at a depot, it would make sense to expand on the areas where profitability was greatest, and reduce or eliminate areas where it was negative or neutral.

80/20 Principle

Professor Bala Balachandran, director of the Accounting Research Center at Northwestern University's Kellogg Graduate School of Management, has also expressed this view, saying that ABC allows you to see which customers are serving you best; for most companies, 20 percent of their customers account for 200 percent of their profits, while the remaining 80 percent actually lose money for the company.

Richard Koch, in his book "The 80/20 Principle: The Secret of Achieving More with Less," discusses the 80/20 principle. The principle has been recognized for some time, and has been discussed under several terms over the years, such as the Pareto Principle, the Law of Diminishing Returns, the Principle of Least Effort, and, more recently, Chaos Theory. He points out that there is an imbalance in the relationship between effort and benefits (non-linearity), such that 20 percent of the effort achieves, hypothetically, 80 percent of the results, or benefits.

These premises suggest that nearly all businesses have within them chunks of business that have widely varying profitability. A firm that discovers that 80 percent of its profits come from 20 percent of its customers, or products, should use this information to concentrate on keeping that 20 percent happy, or increasing its efforts to sell more of those types of products.

The reverse can also exist in a business, where the bottom 20 percent of products generate most of the losses, and those products should be dropped or outsourced. Thus, hypothetically, one could derive a double benefit from the analysis by boosting the profitable items and dropping the unproductive ones. Consequently, this type of analysis could be done for products, customers, or any other competitive segment. For instance, Koehler Manufacturing Company, performing an ABC analysis on their products, found that after attributing the administrative costs, their favored products were caused a 30 percent loss in profits.

Be Wary of Initial Results

As with any analysis, decisions should not be made solely on the basis of initial results; one also needs to look at the direction of the segments under consideration and, for negative ones, whether they are improving over time or performing poorly for known reasons that can be improved. Likewise, before one expands a profitable area, is it actually feasible to expand that area, and are the results realistic and not a fluke of limited sample sizes? Further, ABC analysis should always use estimated or historical costs, not real-time costs, for real-time costs are subject to fluctuations unrelated to the underlying economics and productivity of the activities being studied. Evidently, normal fluctuations in spending, volume, productivity, and yield will always exist.

ABC Analysis Data

Touching on this area, one of the concerns that has been voiced about ABC analysis is that the data may not exist to the level of detail needed. To answer this concern, one of the ABC software providers made a statement that ABC estimated values are rather robust, statistically speaking, and can tolerate reasonable cost estimates as proxies for actual transaction detail costs, for they tend to dampen out as those costs are attributed to the final cost objects. Other considerations that should be taken into account as part of the implementation of an ABC system follow:

- Try it first on a sample product(s) prior to an overall implementation, in order to get a feel for how it works.
- The products that are analyzed need to have a definable process.
- The ABC process needs to be accepted by both management and employees as a way to improve the work process, since both these groups provide important feedback to the system.
- The administration of the ABC process should not be performed by just one group; rather, all divisions in an organization need to contribute and coordinate their input to make the process function.

ABC Software

To aid in the use of ABC analysis, several companies have developed specific ABC software. It seems to be an important issue, given how extremely complicated ABC accounting could become, especially with depots that have hundreds of product lines. Thus, it would be necessary to obtain software capable of handling the number of variables that would go into an activity management evaluation for our depots. Currently, site licenses run from about $5,500 to $7,000, and training could cost an additional $3,000 or more. However, in respect to the millions of dollars that are involved in depot operations, the costs to implement an ABC accounting system would be miniscule.

"Real" Improvements vs. "Wishful Thinking"

Recognizing over the past few years that they needed to broaden their customer base beyond government customers, depots have expanded their facilities, both in terms of new buildings and new

equipment, in the hope of luring private industry customers to their doors. Basically, the premise of this philosophy makes sense, because without expanding their customer base, depots face increasing costs. But unless this expansion is justified by increased profitability, the new facilities will have the undesired effect of making the depots less competitive, since these additional expenses add to the overhead of depot operations.

As such, it is important that decisions to expand depot facilities be based upon "real" improvements in business profitability and not "wishful thinking." This is where ABC management decisions would come into play – to gauge what activities are candidates for increased workload. Likewise, these analyses can aid in determining which buildings and product lines are candidates to either be closed or outsourced.

Editor's Note: The author welcomes questions and comments on this article Contact him at **William.Washington2@mail1.monmouth.army.mil**

ENDNOTES

1. Koch, Richard, *The 80/20 Principle: The Secret of Achieving More with Less*, Doubleday & Company, February 1998.

2. GAO Report, DoD Financial Management: More Reliable Information Key to Assuring Accountability and Managing Defense Operations More Efficiently, T-AIMD/NSIAD, 99-145, April 1999.

3. GAO Report, Financial Management: Better Controls Essential to Improve the Reliability of DoD's Depot Inventory Records, AIMD-99-132, June 1999.

4. Gansler, Dr. Jacques S., Memorandum, "Defense-wide Implementation of Activity Based Management," (OUSD [A&T}, July 3, 1999).

Selected Acquisition Reports
As of June 30, 2000

The Department of Defense has released details on major defense acquisition program cost and schedule changes since the December 1999 reporting period. This information is based on the Selected Acquisition Reports (SAR) submitted to the Congress for the June 30, 2000, reporting period.

SARs summarize the latest estimates of cost, schedule, and technical status. These reports are prepared annually in conjunction with the President's budget. Subsequent quarterly exception reports are required only for those programs experiencing unit cost increases of at least 15 percent or schedule delays of at least six months. Quarterly SARs are also submitted for initial reports, final reports, and for programs that are rebaselined at major milestone decisions.

The total program cost estimates provided in the SARs include research and development, procurement, military construction, and acquisition-related operation and maintenance. Total program costs reflect actual costs to date as well as anticipated costs for future efforts. All estimates include allowances for anticipated inflation.

The current estimate of program acquisition costs for programs covered by SARs for the prior reporting period (December 1999) was $742,344.9 million. After subtracting the costs for final reports and adding the costs [of] new programs from December 1999, the adjusted current estimate of program acquisition costs was $731,503.8 million. There was a net cost change of +$850.9 million during the current reporting period (June 2000).

Editor's Note: This information was released by the Office of the Assistant Secretary of Defense for Public Affairs. To download the *Selected Acquisition Reports* summary from June 2000 and the *SAR Program Acquisition* cost summary table detailing dollar amounts, visit **www.defenselink.mil/news/Aug2000/b08182000_bt512-00.html** on the Internet.